

RESULT 1
 US-09-523-656-37
 ; Sequence 37, Application US/09523656
 ; Patent No. 6458563
 ; GENERAL INFORMATION:
 ; APPLICANT: Lollar S., John
 ; TITLE OF INVENTION: MODIFIED FACTOR VIII
 ; FILE REFERENCE: 75-95I
 ; CURRENT APPLICATION NUMBER: US/09/523,656
 ; CURRENT FILING DATE: 2000-03-10
 ; EARLIER APPLICATION NUMBER: 09/037,601
 ; EARLIER FILING DATE: 1998-03-10
 ; EARLIER APPLICATION NUMBER: 08/670,707
 ; EARLIER FILING DATE: 1996-06-26
 ; NUMBER OF SEQ ID NOS: 38
 ; SOFTWARE: PatentIn Ver. 2.0
 ; SEQ ID NO 37
 ; LENGTH: 4404
 ; TYPE: DNA
 ; ORGANISM: Porcine
 ; FEATURE:
 ; NAME/KEY: CDS
 ; LOCATION: (1)..(4401)
 US-09-523-656-37

Query Match 90.0%; Score 3962.6; DB 3; Length 4404;
 Best Local Similarity 93.8%; Pred. No. 0;
 Matches 4127; Conservative 0; Mismatches 274; Indels 0; Gaps 0;

| | | | |
|----|-----|--|-----|
| Qy | 1 | ATGCAGCTAGAGCTCTCCACCTGTGTCTTTCTGTGTCTCTTGCCACTCGGCTTTAGTGCC | 60 |
| | | | |
| Db | 1 | ATGCAGCTAGAGCTCTCCACCTGTGTCTTTCTGTGTCTCTTGCCACTCGGCTTTAGTGCC | 60 |
| Qy | 61 | ATCAGGAGATACTACCTGGGCGCAGTGGAACTGTCTGGGACTACCGGCAAAGTGAATC | 120 |
| | | | |
| Db | 61 | ATCAGGAGATACTACCTGGGCGCAGTGGAACTGTCTGGGACTACCGGCAAAGTGAATC | 120 |
| Qy | 121 | CTCCGTGAGCTGCACGTGGACACCAGATTTCTGTCTACAGCGCCAGGAGCTCTTCCGTTG | 180 |
| | | | |
| Db | 121 | CTCCGTGAGCTGCACGTGGACACCAGATTTCTGTCTACAGCGCCAGGAGCTCTTCCGTTG | 180 |
| Qy | 181 | GGCCCGTCAGTCCTGTACAAAAAGACTGTGTTCGTAGAGTTCACGGATCAACTTTTCAGC | 240 |
| | | | |
| Db | 181 | GGCCCGTCAGTCCTGTACAAAAAGACTGTGTTCGTAGAGTTCACGGATCAACTTTTCAGC | 240 |
| Qy | 241 | GTTGCCAGGCCAGGCCACCATGGATGGGTCTGCTGGGTCTACCATCCAGGCTGAGGTT | 300 |
| | | | |
| Db | 241 | GTTGCCAGGCCAGGCCACCATGGATGGGTCTGCTGGGTCTACCATCCAGGCTGAGGTT | 300 |
| Qy | 301 | TACGACACGGTGGTCGTTACCCTGAAGAACATGGCTTCTCATCCCGTTAGTCTTCACGCT | 360 |
| | | | |
| Db | 301 | TACGACACGGTGGTCGTTACCCTGAAGAACATGGCTTCTCATCCCGTTAGTCTTCACGCT | 360 |
| Qy | 361 | GTCGGCGTCTCCTTCTGGAAATCTTCCGAAGGCGCTGAATATGAGGATCACACCAGCCAA | 420 |
| | | | |
| Db | 361 | GTCGGCGTCTCCTTCTGGAAATCTTCCGAAGGCGCTGAATATGAGGATCACACCAGCCAA | 420 |

| | | | |
|----|------|--|------|
| Qy | 421 | AGGGAGAAGGAAGACGATAAAGTCCTTCCCGGTAAAAGCCAAACCTACGTCTGGCAGGTC | 480 |
| | | | |
| Db | 421 | AGGGAGAAGGAAGACGATAAAGTCCTTCCCGGTAAAAGCCAAACCTACGTCTGGCAGGTC | 480 |
| Qy | 481 | CTGAAAGAAAATGGTCCAACAGCCTCTGACCCACCATGTCTTACCTACTCATACCTGTCT | 540 |
| | | | |
| Db | 481 | CTGAAAGAAAATGGTCCAACAGCCTCTGACCCACCATGTCTTACCTACTCATACCTGTCT | 540 |
| Qy | 541 | CACGTGGACCTGGTGAAAGACCTGAATTCGGGCCTCATTGGAGCCCTGCTGGTTTGTAGA | 600 |
| | | | |
| Db | 541 | CACGTGGACCTGGTGAAAGACCTGAATTCGGGCCTCATTGGAGCCCTGCTGGTTTGTAGA | 600 |
| Qy | 601 | GAAGGGAGTCTGACCAGAGAAAGGACCCAGAACCTGCACGAATTTGTACTACTTTTTGCT | 660 |
| | | | |
| Db | 601 | GAAGGGAGTCTGACCAGAGAAAGGACCCAGAACCTGCACGAATTTGTACTACTTTTTGCT | 660 |
| Qy | 661 | GTCTTTGATGAAGGGAAAAGTTGGCACTCAGCAAGAAATGACTCCTGGACACGGGCCATG | 720 |
| | | | |
| Db | 661 | GTCTTTGATGAAGGGAAAAGTTGGCACTCAGCAAGAAATGACTCCTGGACACGGGCCATG | 720 |
| Qy | 721 | GATCCCGCACCTGCCAGGGCCCAGCCTGCAATGCACACAGTCAATGGCTATGTCAACAGG | 780 |
| | | | |
| Db | 721 | GATCCCGCACCTGCCAGGGCCCAGCCTGCAATGCACACAGTCAATGGCTATGTCAACAGG | 780 |
| Qy | 781 | TCTCTGCCAGGTCTGATCGGATGTCATAAGAAATCAGTCTACTGGCACGTGATTGGAATG | 840 |
| | | | |
| Db | 781 | TCTCTGCCAGGTCTGATCGGATGTCATAAGAAATCAGTCTACTGGCACGTGATTGGAATG | 840 |
| Qy | 841 | GGCACCAGCCCGBAAGTGCACTCCATTTTTCTTGAAGGCCACACGTTTCTCGTGAGGCAC | 900 |
| | | | |
| Db | 841 | GGCACCAGCCCGBAAGTGCACTCCATTTTTCTTGAAGGCCACACGTTTCTCGTGAGGCAC | 900 |
| Qy | 901 | CATCGCCAGGCTTCCTTGGAGATCTCGCCACTAACTTTCCTCACTGCTCAGACATTCTG | 960 |
| | | | |
| Db | 901 | CATCGCCAGGCTTCCTTGGAGATCTCGCCACTAACTTTCCTCACTGCTCAGACATTCTG | 960 |
| Qy | 961 | ATGGACCTTGCCAGTTCTACTGTTTTGTCATATCTCTTCCCACCACCATGGTGGCATG | 1020 |
| | | | |
| Db | 961 | ATGGACCTTGCCAGTTCTACTGTTTTGTCATATCTCTTCCCACCACCATGGTGGCATG | 1020 |
| Qy | 1021 | GAGGCTCACGTCAGAGTAGAAAGCTGCGCCGAGGAGCCCCAGCTGCGGAGGAAAGCTGAT | 1080 |
| | | | |
| Db | 1021 | GAGGCTCACGTCAGAGTAGAAAGCTGCGCCGAGGAGCCCCAGCTGCGGAGGAAAGCTGAT | 1080 |
| Qy | 1081 | GAAGAGGAAGATTATGATGACAATTTGTACGACTCGGACATGGACGTGGTCCGGCTCGAT | 1140 |
| | | | |
| Db | 1081 | GAAGAGGAAGATTATGATGACAATTTGTACGACTCGGACATGGACGTGGTCCGGCTCGAT | 1140 |
| Qy | 1141 | GGTGACGACGTGTCTCCCTTTATCCAAATCCGCTCAGTTGCCAAGAAGCATCCTAAAACT | 1200 |
| | | | |
| Db | 1141 | GGTGACGACGTGTCTCCCTTTATCCAAATCCGCTCAGTTGCCAAGAAGCATCCTAAAACT | 1200 |
| Qy | 1201 | TGGGTACATTACATTGCTGCTGAAGAGGAGGACTGGGACTATGCTCCCTTAGTCCTCGCC | 1260 |
| | | | |
| Db | 1201 | TGGGTGCACTACATCTCTGCAGAGGAGGAGGACTGGGACTACGCCCCCGCGGTCCCCAGC | 1260 |
| Qy | 1261 | CCCGATGACAGAAGTTATAAAAGTCAATATTTGAACAATGGCCCTCAGCGGATTGGTAGG | 1320 |

| | | | |
|----|------|---|------|
| Db | 1261 | CCCAGTGACAGAAGTTATAAAAAGTCTCTACTTGAACAGTGGTCTCAGCGAATTGGTAGG | 1320 |
| Qy | 1321 | AAGTACAAAAAAGTCCGATTTATGGCATAACAGATGAAACCTTTAAGACGCGTGAAGCT | 1380 |
| Db | 1321 | AAATACAAAAAAGCTCGATTTCGTCGCTTACACGGATGTAACATTTAAGACTCGTAAAGCT | 1380 |
| Qy | 1381 | ATTTCAGCATGAATCAGGAATCTTGGGACCTTTACTTTATGGGGAAGTTGGAGACACACTG | 1440 |
| Db | 1381 | ATTCCGTATGAATCAGGAATCCTGGGACCTTTACTTTATGGAGAAGTTGGAGACACACTT | 1440 |
| Qy | 1441 | TTGATTATATTTAAGAAATCAAGCAAGCAGACCATATAACATCTACCCTCACGGAATCACT | 1500 |
| Db | 1441 | TTGATTATATTTAAGAAATAAAGCGAGCCGACCATATAACATCTACCCTCATGGAATCACT | 1500 |
| Qy | 1501 | GATGTCCGTCCTTTGTATTCAAGGAGATTACCAAAGGTGTAAACATTTGAAGGATTTT | 1560 |
| Db | 1501 | GATGTCAGCGCTTTGCACCCAGGGAGACTTCTAAAAGGTGGAACATTTGAAAGACATG | 1560 |
| Qy | 1561 | CCAATTCTGCCAGGAGAAATATTCAAATATAAATGGACAGTGACTGTAGAAGATGGGCCA | 1620 |
| Db | 1561 | CCAATTCTGCCAGGAGAGACTTTCAAGTATAAATGGACAGTGACTGTGGAAGATGGGCCA | 1620 |
| Qy | 1621 | ACTAAATCAGATCCGCGGTGCCTGACCCGCTATTACTCTAGTTTCGTTAATATGGAGAGA | 1680 |
| Db | 1621 | ACCAAGTCCGATCCTCGGTGCCTGACCCGCTACTACTCGAGCTCCATTAATCTAGAGAAA | 1680 |
| Qy | 1681 | GATCTAGCTTCAGGACTCATTGGCCCTCTCCTCATCTGCTACAAAGAATCTGTAGATCAA | 1740 |
| Db | 1681 | GATCTGGCTTCGGGACTCATTGGCCCTCTCCTCATCTGCTACAAAGAATCTGTAGACCAA | 1740 |
| Qy | 1741 | AGAGGAAACCAGATAATGTCAGACAAGAGGAATGTCATCCTGTTTTCTGTATTTGATGAG | 1800 |
| Db | 1741 | AGAGGAAACCAGATGATGTCAGACAAGAGAAACGTCATCCTGTTTTCTGTATTCGATGAG | 1800 |
| Qy | 1801 | AACCGAAGCTGGTACCTCACAGAGAATATACAACGCTTTCTCCCCAATCCAGCTGGAGTG | 1860 |
| Db | 1801 | AATCAAAGCTGGTACCTCGCAGAGAATATTACGCGCTTCTCTCCCCAATCCGGATGGATTA | 1860 |
| Qy | 1861 | CAGCTTGAGGATCCAGAGTTCCAAGCCTCCAACATCATGCACAGCATCAATGGCTATGTT | 1920 |
| Db | 1861 | CAGCCCCAGGATCCAGAGTTCCAAGCTTCTAACATCATGCACAGCATCAATGGCTATGTT | 1920 |
| Qy | 1921 | TTTGATAGTTTGCAGTTGTCAGTTTGTTTGTCATGAGGTGGCATACTGGTACATTCTAAGC | 1980 |
| Db | 1921 | TTTGATAGCTTGCAGCTGTCGGTTTGTTTGTCACGAGGTGGCATACTGGTACATTCTAAGT | 1980 |
| Qy | 1981 | ATTGGAGCACAGACTGACTTCCTTTCTGTCCTTCTCTGGATATACCTTCAAACACAAA | 2040 |
| Db | 1981 | GTTGGAGCACAGACGGACTTCCTCTCCGCTTCTTCTCTGGCTACACCTTCAAACACAAA | 2040 |
| Qy | 2041 | ATGGTCTATGAAGACACACTCACCCTATTCCCATTCTCAGGAGAACTGCTTCATGTCTG | 2100 |
| Db | 2041 | ATGGTCTATGAAGACACACTCACCCTGTTCCCCTTCTCAGGAGAAACGGTCTTCATGTCA | 2100 |
| Qy | 2101 | ATGGAAAACCCAGGTCTATGGATTCTGGGGTGCCACAACCTCAGACTTTCGGAACAGAGGC | 2160 |

| | | | |
|----|------|---|------|
| Db | 2101 | ATGGAAAACCCAGGTCTCTGGGTCTCTGGGTGCCACAACCTCAGACTTGCGGAACAGAGGG | 2160 |
| Qy | 2161 | ATGACCGCCTTACTGAAGGTTTCTAGTTGTGACAAGAACACTGGTGATTATTACGAGGAC | 2220 |
| Db | 2161 | | |
| Db | 2161 | ATGACAGCCTTACTGAAGGTGTATAGTTGTGACAGGGACATTGGTGATTATTATGACAAC | 2220 |
| Qy | 2221 | AGTTATGAAGATATTTTCTAGCATCTTGCTGAGTAAAAACAATGCCATTGAACCTAGGAGC | 2280 |
| Db | 2221 | | |
| Db | 2221 | ACTTATGAAGATATTCCAGGCTTCTTGCTGAGTGAAAGAATGTCATTGAACCTAGGAGC | 2280 |
| Qy | 2281 | TTTGCCCGAATTCAAGACCCCTAGTGCGAGCGCTCCAAAGCCTCCGGTCTGCGACGG | 2340 |
| Db | 2281 | | |
| Db | 2281 | TTTGCCCGAATTCAAGACCCCTAGTGCGAGCGCTCCAAAGCCTCCGGTCTGCGACGG | 2340 |
| Qy | 2341 | CATCAGAGGGACATAAGCCTTCTTACTTTTCAGCCGGAGGAAGACAAAATGGACTATGAT | 2400 |
| Db | 2341 | | |
| Db | 2341 | CATCAGAGGGACATAAGCCTTCTTACTTTTCAGCCGGAGGAAGACAAAATGGACTATGAT | 2400 |
| Qy | 2401 | GATATCTTCTCAACTGAAACGAAGGGAGAAGATTTTGACATTTACGGTGAGGATGAAAAAT | 2460 |
| Db | 2401 | | |
| Db | 2401 | GATATCTTCTCAACTGAAACGAAGGGAGAAGATTTTGACATTTACGGTGAGGATGAAAAAT | 2460 |
| Qy | 2461 | CAGGACCTTCGCAGCTTTTCTAGAAAGAGAACCCGACACTATTTTATTGCTGCGGTGGAGCAG | 2520 |
| Db | 2461 | | |
| Db | 2461 | CAGGACCTTCGCAGCTTTTCTAGAAAGAGAACCCGACACTATTTTATTGCTGCGGTGGAGCAG | 2520 |
| Qy | 2521 | CTCTGGGATTACGGGATGAGCGAATCCCCCGGGCGCTAAGAAACAGGGCTCAGAACGGA | 2580 |
| Db | 2521 | | |
| Db | 2521 | CTCTGGGATTACGGGATGAGCGAATCCCCCGGGCGCTAAGAAACAGGGCTCAGAACGGA | 2580 |
| Qy | 2581 | GAGGTGCCTCGGTTCAAGAAGGTGGTCTTCCGGGAATTTGCTGACGGCTCCTTCACGCAG | 2640 |
| Db | 2581 | | |
| Db | 2581 | GAGGTGCCTCGGTTCAAGAAGGTGGTCTTCCGGGAATTTGCTGACGGCTCCTTCACGCAG | 2640 |
| Qy | 2641 | CCGTCGTACCGCGGGGAACCTCAACAAACACTTGGGGCTCTTGGGACCCTACATCAGAGCG | 2700 |
| Db | 2641 | | |
| Db | 2641 | CCGTCGTACCGCGGGGAACCTCAACAAACACTTGGGGCTCTTGGGACCCTACATCAGAGCG | 2700 |
| Qy | 2701 | GAAGTTGAAGACAACATCATGGTAACTTTCAAAAACAGGCGTCTCGTCCCTATTCTTTC | 2760 |
| Db | 2701 | | |
| Db | 2701 | GAAGTTGAAGACAACATCATGGTAACTTTCAAAAACAGGCGTCTCGTCCCTATTCTTTC | 2760 |
| Qy | 2761 | TACTCGAGCCTTATTTCTTATCCGGATGATCAGGAGCAAGGGGCAGAACCTCGACACAAC | 2820 |
| Db | 2761 | | |
| Db | 2761 | TACTCGAGCCTTATTTCTTATCCGGATGATCAGGAGCAAGGGGCAGAACCTCGACACAAC | 2820 |
| Qy | 2821 | TTCGTCCAGCCAAATGAAACCAGAACTTACTTTTGGAAAGTGACGATCACATGGCACCC | 2880 |
| Db | 2821 | | |
| Db | 2821 | TTCGTCCAGCCAAATGAAACCAGAACTTACTTTTGGAAAGTGACGATCACATGGCACCC | 2880 |
| Qy | 2881 | ACAGAAGACGAGTTTGACTGCAAAGCCTGGGCCTACTTTTCTGATGTTGACCTGGAAAAA | 2940 |
| Db | 2881 | | |
| Db | 2881 | ACAGAAGACGAGTTTGACTGCAAAGCCTGGGCCTACTTTTCTGATGTTGACCTGGAAAAA | 2940 |
| Qy | 2941 | GATGTGCACTCAGGCTTGATCGGCCCTTCTGATCTGCCGCGCCAACACCCTGAACGCT | 3000 |
| Db | 2941 | | |
| Db | 2941 | GATGTGCACTCAGGCTTGATCGGCCCTTCTGATCTGCCGCGCCAACACCCTGAACGCT | 3000 |

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|----|------|--|------|
| Qy | 3001 | GCTCACGGTAGACAAGTGACCGTGCAAGAATTTGCTCTGTTTTTCACTATTTTTGATGAG | 3060 |
| | | | |
| Db | 3001 | GCTCACGGTAGACAAGTGACCGTGCAAGAATTTGCTCTGTTTTTCACTATTTTTGATGAG | 3060 |
| Qy | 3061 | ACAAAGAGCTGGTACTTCACTGAAAATGTGGAAAGGAAGTGCCGGGCCCCCTGCCATCTG | 3120 |
| | | | |
| Db | 3061 | ACAAAGAGCTGGTACTTCACTGAAAATGTGGAAAGGAAGTGCCGGGCCCCCTGCCATCTG | 3120 |
| Qy | 3121 | CAGATGGAGGACCCCACTCTGAAAGAAAACATATCGCTTCCATGCAATCAATGGCTATGTG | 3180 |
| | | | |
| Db | 3121 | CAGATGGAGGACCCCACTCTGAAAGAAAACATATCGCTTCCATGCAATCAATGGCTATGTG | 3180 |
| Qy | 3181 | ATGGATACACTCCCTGGCTTAGTAATGGCTCAGAATCAAAGGATCCGATGGTATCTGCTC | 3240 |
| | | | |
| Db | 3181 | ATGGATACACTCCCTGGCTTAGTAATGGCTCAGAATCAAAGGATCCGATGGTATCTGCTC | 3240 |
| Qy | 3241 | AGCATGGGCAGCAATGAAAATATCCATTTCGATTCAATTTAGCGGACACGTGTTTCAGTGTA | 3300 |
| | | | |
| Db | 3241 | AGCATGGGCAGCAATGAAAATATCCATTTCGATTCAATTTAGCGGACACGTGTTTCAGTGTA | 3300 |
| Qy | 3301 | CGGAAAAAGGAGGAGTATAAAATGGCCGTGTACAATCTCTATCCGGGTGTCTTTGAGACA | 3360 |
| | | | |
| Db | 3301 | CGGAAAAAGGAGGAGTATAAAATGGCCGTGTACAATCTCTATCCGGGTGTCTTTGAGACA | 3360 |
| Qy | 3361 | GTGGAAATGCTACCGTCCAAAGTTGGAATTTGGCGAATAGAATGCCTGATTGGCGAGCAC | 3420 |
| | | | |
| Db | 3361 | GTGGAAATGCTACCGTCCAAAGTTGGAATTTGGCGAATAGAATGCCTGATTGGCGAGCAC | 3420 |
| Qy | 3421 | CTGCAAGCTGGGATGAGCAGCACTTTCTCGGTGTACAGCAAGAAGTGTGAGACTCCCCTG | 3480 |
| | | | |
| Db | 3421 | CTGCAAGCTGGGATGAGCAGCACTTTCTCGGTGTACAGCAAGAAGTGTGAGACTCCCCTG | 3480 |
| Qy | 3481 | GGAATGGCTTTCGGACACATTAGAGATTTTCAGATTACAGCTTCAGGACAATATGGACAG | 3540 |
| | | | |
| Db | 3481 | GGAATGGCTTTCGGACGATTAGAGATTTTCAGATCACAGCTTCAGGACAGTATGGACAG | 3540 |
| Qy | 3541 | TGGGCCCCAAAGCTGGCCAGACTTCATTATTCCGGATCAATCAATGCCTGGAGCACCAAG | 3600 |
| | | | |
| Db | 3541 | TGGGCCCCAAAGCTGGCCAGACTTCATTATTCCGGATCAATCAATGCCTGGAGCACCAAG | 3600 |
| Qy | 3601 | GAGCCCTTTTCTTGGATCAAGGTGGATCTGTTGGCACCAATGATTATTCACGGCATCAAG | 3660 |
| | | | |
| Db | 3601 | GATCCCCACTTCTGGATCAAGGTGGATCTGTTGGCACCAATGATCATTACGGCATCATG | 3660 |
| Qy | 3661 | ACCCAGGGTGCCCGTCAGAAGTTCTCCAGCCTCTACATCTCTCAGTTTATCATCATGTAT | 3720 |
| | | | |
| Db | 3661 | ACCCAGGGTGCCCGTCAGAAGTTTCTCAGCCTCTACATCTCCCAGTTTATCATCATGTAC | 3720 |
| Qy | 3721 | AGTCTTGATGGGAAGAAGTGGCAGACTTATCGAGGAAATTCCACTGGAACCTTAATGGTC | 3780 |
| | | | |
| Db | 3721 | AGTCTTGACGGGAGGAAGTGGCAGAGTTACCGAGGAATTCCACGGGCACCTTAATGGTC | 3780 |
| Qy | 3781 | TTCTTTGGCAATGTGGATTATCTGGGATAAAACACAATATTTTAAACCCTCCAATTATT | 3840 |
| | | | |
| Db | 3781 | TTCTTTGGCAATGTGGACGCATCTGGGATTAAACACAATATTTTAAACCCTCCGATTGTG | 3840 |

| | | | |
|----|------|---|------|
| Qy | 3841 | GCTCGATACATCCGTTTGCACCCAACTCATTATAGCATTTCGCAGCACTCTTCGCATGGAG | 3900 |
| | | | |
| Db | 3841 | GCTCGGTACATCCGTTTGCACCCAAACACATTACAGCATCCGCAGCACTCTTCGCATGGAG | 3900 |
| Qy | 3901 | TTGATGGGCTGTGATTTAAATAGTTGCAGCATGCCATTGGGAATGGAGAGTAAAGCAATA | 3960 |
| | | | |
| Db | 3901 | TTGATGGGCTGTGATTTAAACAGTTGCAGCATGCCCTGGGAATGCAGAATAAAGCGATA | 3960 |
| Qy | 3961 | TCAGATGCACAGATTACTGCTTCATCCTACTTTACCAATATGTTTGCCACCTGGTCTCCT | 4020 |
| | | | |
| Db | 3961 | TCAGACTCACAGATCACGGCTCCTCCCACCTAAGCAATATATTGCCACCTGGTCTCCT | 4020 |
| Qy | 4021 | TCAAAAGCTCGACTTCACCTCCAAGGGAGGAGTAATGCCTGGAGACCTCAGGTGAATAAT | 4080 |
| | | | |
| Db | 4021 | TCACAAGCCCGACTTCACCTCAGGGGCGGACGAATGCCTGGCGACCCCGGGTGAGCAGC | 4080 |
| Qy | 4081 | CCAAAAGAGTGGCTGCAAGTGGACTTCCAGAAGACAATGAAAGTCACAGGAGTAACTACT | 4140 |
| | | | |
| Db | 4081 | GCAGAGGAGTGGCTGCAGGTGGACCTGCAGAAGACGGTGAAGGTCACAGGCATCACCACC | 4140 |
| Qy | 4141 | CAGGGAGTAAAATCTCTGCTTACCAGCATGTATGTGAAGGAGTTCCTCATCTCCAGCAGT | 4200 |
| | | | |
| Db | 4141 | CAGGGCGTGAAGTCCCTGCTCAGCAGCATGTATGTGAAGGAGTTCCTCGTGTCCAGTAGT | 4200 |
| Qy | 4201 | CAAGATGGCCATCAGTGGACTCTCTTTTTTTCAGAATGGCAAAGTAAAGGTTTTTCAGGGA | 4260 |
| | | | |
| Db | 4201 | CAGGACGGCCGCCGCTGGACCCTGTTTCTTCAGGACGGCCACACGAAGGTTTTTCAGGGC | 4260 |
| Qy | 4261 | AATCAAGACTCCTTCACACCTGTGGTGAAGTCTCTAGACCCACCGTTACTGACTCGCTAC | 4320 |
| | | | |
| Db | 4261 | AATCAGGACTCCTCCACCCCGTGGTGAACGCTCTGGACCCCGCTGTTACGCGCTAC | 4320 |
| Qy | 4321 | CTTCGAATTCACCCCCAGAGTTGGGTGCACCAGATTGCCCTGAGGATGGAGGTTCTGGGC | 4380 |
| | | | |
| Db | 4321 | CTGAGGATCCACCCACGAGCTGGGCGCAGCACATCGCCCTGAGGCTCGAGGTTCTAGGA | 4380 |
| Qy | 4381 | TGCGAGGCACAGGACCTCTAC | 4401 |
| | | | |
| Db | 4381 | TGTGAGGCACAGGATCTCTAC | 4401 |

RESULT 2

US-08-670-707A-38

; Sequence 38, Application US/08670707A

; Patent No. 5859204

; GENERAL INFORMATION:

; APPLICANT: Lollar, John S.

; TITLE OF INVENTION: Hybrid Human/Animal Factor VIII

; NUMBER OF SEQUENCES: 40

; CORRESPONDENCE ADDRESS:

; ADDRESSEE: Greenlee, Winner and Sullivan, P.C.

; STREET: 5370 Manhattan Circle Suite 201

; CITY: Boulder

; STATE: Colorado

; COUNTRY: USA

; ZIP: 80303

; COMPUTER READABLE FORM:

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; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/670,707A
; FILING DATE: 26-JUN-1996
; CLASSIFICATION: 435
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: WO PCT/US94/13200
; FILING DATE: 15-NOV-1994
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/212,133
; FILING DATE: 11-MAR-1994
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/864,004
; FILING DATE: 07-APR-1992
; ATTORNEY/AGENT INFORMATION:
; NAME: Greenlee, Lorraine L.
; REGISTRATION NUMBER: 27,894
; REFERENCE/DOCKET NUMBER: 75-95F
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 303/499-8080
; TELEFAX: 303/499-8089
; INFORMATION FOR SEQ ID NO: 38:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 4334 base pairs
; TYPE: nucleic acid
; STRANDEDNESS: double
; TOPOLOGY: not relevant
; MOLECULE TYPE: cDNA to mRNA
; HYPOTHETICAL: NO
; ORIGINAL SOURCE:
; INDIVIDUAL ISOLATE: Factor VIII lacking B domain
; FEATURE:
; NAME/KEY: CDS
; LOCATION: 3..4334
US-08-670-707A-38

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Query Match          86.4%; Score 3802.2; DB 2; Length 4334;
Best Local Similarity 92.0%; Pred. No. 0;
Matches 4051; Conservative 0; Mismatches 278; Indels 72; Gaps 1;

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Qy      1 ATGCAGCTAGAGCTCTCCACCTGTGTCTTTCTGTGTCTCTTGCCACTCGGCTTTAGTGCC 60
        |||
Db      3 ATGCAGCTAGAGCTCTCCACCTGTGTCTTTCTGTGTCTCTTGCCACTCGGCTTTAGTGCC 62

Qy     61 ATCAGGAGATACTACCTGGGCGCAGTGGAAGTGTCTGCTGGGACTACCGGCAAAGTGAAGTC 120
        |||
Db     63 ATCAGGAGATACTACCTGGGCGCAGTGGAAGTGTCTGCTGGGACTACCGGCAAAGTGAAGTC 122

Qy    121 CTCCGTGAGCTGCACGTGGACACCAGATTTCTGCTACAGCGCCAGGAGCTCTTCCGTTG 180
        |||
Db    123 CTCCGTGAGCTGCACGTGGACACCAGATTTCTGCTACAGCGCCAGGAGCTCTTCCGTTG 182

Qy    181 GGCCCGTCAGTCCTGTACAAAAAGACTGTGTTTCGTAGAGTTCACGGATCAACTTTTCAGC 240
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|----|------|---|------|
| Db | 183 | GGCCCCGTCAGTCCTGTACAAAAAGACTGTGTTTCGTAGAGTTCACGGATCAACTTTTTCAGC | 242 |
| Qy | 241 | GTTGCCAGGCCAGGCCACCATGGATGGGTCTGCTGGGTCCTACCATCCAGGCTGAGGTT | 300 |
| | | | |
| Db | 243 | GTTGCCAGGCCAGGCCACCATGGATGGGTCTGCTGGGTCCTACCATCCAGGCTGAGGTT | 302 |
| Qy | 301 | TACGACACGGTGGTCGTTACCCCTGAAGAACAIGGCTTCTCATCCCGTTAGTCTTCACGCT | 360 |
| | | | |
| Db | 303 | TACGACACGGTGGTCGTTACCCCTGAAGAACAIGGCTTCTCATCCCGTTAGTCTTCACGCT | 362 |
| Qy | 361 | GTCGGCGTCTCCTTCTGGAAATCTTCCGAAGGCGCTGAATATGAGGATCACACCAGCCAA | 420 |
| | | | |
| Db | 363 | GTCGGCGTCTCCTTCTGGAAATCTTCCGAAGGCGCTGAATATGAGGATCACACCAGCCAA | 422 |
| Qy | 421 | AGGGAGAAGGAAGACGATAAAGTCCTTCCCGGTAAAAGCCAAACCTACGTCTGGCAGGTC | 480 |
| | | | |
| Db | 423 | AGGGAGAAGGAAGACGATAAAGTCCTTCCCGGTAAAAGCCAAACCTACGTCTGGCAGGTC | 482 |
| Qy | 481 | CTGAAAGAAAATGGTCCAACAGCCTCTGACCCACCATGTCTTACCTACTCATACCTGTCT | 540 |
| | | | |
| Db | 483 | CTGAAAGAAAATGGTCCAACAGCCTCTGACCCACCATGTCTTACCTACTCATACCTGTCT | 542 |
| Qy | 541 | CACGTGGACCTGGTGAAAAGACCTGAATTCGGGCGCTCATGGAGCCCTGCTGGTTTGTAGA | 600 |
| | | | |
| Db | 543 | CACGTGGACCTGGTGAAAAGACCTGAATTCGGGCGCTCATGGAGCCCTGCTGGTTTGTAGA | 602 |
| Qy | 601 | GAAGGGAGTCTGACCAGAGAAAAGGACCCAGAACCTGCACGAATTTGTACTACTTTTTGCT | 660 |
| | | | |
| Db | 603 | GAAGGGAGTCTGACCAGAGAAAAGGACCCAGAACCTGCACGAATTTGTACTACTTTTTGCT | 662 |
| Qy | 661 | GTCTTTGATGAAGGGAAAAGTTGGCACTCAGCAAGAAATGACTCCTGGACACGGGCCATG | 720 |
| | | | |
| Db | 663 | GTCTTTGATGAAGGGAAAAGTTGGCACTCAGCAAGAAATGACTCCTGGACACGGGCCATG | 722 |
| Qy | 721 | GATCCCGCACCTGCCAGGGCCCAGCCTGCAATGCACACAGTCAATGGCTATGTCAACAGG | 780 |
| | | | |
| Db | 723 | GATCCCGCACCTGCCAGGGCCCAGCCTGCAATGCACACAGTCAATGGCTATGTCAACAGG | 782 |
| Qy | 781 | TCTCTGCCAGGTCTGATCGGATGTCATAAGAAATCAGTCTACTGGCACGTGATTGGAATG | 840 |
| | | | |
| Db | 783 | TCTCTGCCAGGTCTGATCGGATGTCATAAGAAATCAGTCTACTGGCACGTGATTGGAATG | 842 |
| Qy | 841 | GGCACCAGCCCGGAAGTGCACTCCATTTTCTTGAAGGCCACACGTTTCTCGTGAGGCAC | 900 |
| | | | |
| Db | 843 | GGCACCAGCCCGGAAGTGCACTCCATTTTCTTGAAGGCCACACGTTTCTCGTGAGGCAC | 902 |
| Qy | 901 | CATCGCCAGGCTTCCTTGGAGATCTCGCCACTAACTTTTCTTCACTGCTCAGACATTCTG | 960 |
| | | | |
| Db | 903 | CATCGCCAGGCTTCCTTGGAGATCTCGCCACTAACTTTTCTTCACTGCTCAGACATTCTG | 962 |
| Qy | 961 | ATGGACCTTGGCCAGTTCCTACTGTTTGTGCATATCTCTTCCCACCACCATGGTGGCATG | 1020 |
| | | | |
| Db | 963 | ATGGACCTTGGCCAGTTCCTACTGTTTGTGCATATCTCTTCCCACCACCATGGTGGCATG | 1022 |
| Qy | 1021 | GAGGCTCACGTCAGAGTAGAAAGCTGCGCCGAGGAGCCCCAGCTGCGGAGGAAAGCTGAT | 1080 |
| | | | |
| Db | 1023 | GAGGCTCACGTCAGAGTAGAAAGCTGCGCCGAGGAGCCCCAGCTGCGGAGGAAAGCTGAT | 1082 |

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|----|------|---|------|
| Qy | 1081 | GAAGAGGAAGATTATGATGACAATTTGTACGACTCGGACATGGACGTGGTCCGGCTCGAT | 1140 |
| | | | |
| Db | 1083 | GAAGAGGAAGATTATGATGACAATTTGTACGACTCGGACATGGACGTGGTCCGGCTCGAT | 1142 |
| Qy | 1141 | GGTGACGACGTGTCTCCCTTTATCCAAATCCGCTCAGTTGCCAAGAAGCATCCTAAAACT | 1200 |
| | | | |
| Db | 1143 | GGTGACGACGTGTCTCCCTTTATCCAAATCCGCTCGGTTGCCAAGAAGCATCCCAAAACC | 1202 |
| Qy | 1201 | TGGGTACATTACATTGCTGCTGAAGAGGAGGACTGGGACTATGCTCCCTTAGTCCTCGCC | 1260 |
| | | | |
| Db | 1203 | TGGGTGCACTACATCTCTGCAGAGGAGGAGGACTGGGACTACGCCCCCGGGTCCCCAGC | 1262 |
| Qy | 1261 | CCCGATGACAGAAGTTATAAAAGTCAATATTTGAACAATGGCCCTCAGCGGATTGGTAGG | 1320 |
| | | | |
| Db | 1263 | CCCAGTGACAGAAGTTATAAAAGTCTCTACTTGAACAGTGGTCCTCAGCGAATTGGTAGG | 1322 |
| Qy | 1321 | AAGTACAAAAAAGTCCGATTATGGCATAACAGATGAAACCTTTAAGACGCGTGAAGCT | 1380 |
| | | | |
| Db | 1323 | AAATACAAAAAAGCTCGATTTCGTCGCTTACACGGATGTAACATTTAAGACTCGTAAAGCT | 1382 |
| Qy | 1381 | ATTCAGCATGAATCAGGAATCTTGGGACCTTTACTTTATGGGGAAGTTGGAGACACACTG | 1440 |
| | | | |
| Db | 1383 | ATTCGATGAATCAGGAATCTTGGGACCTTTACTTTATGGAGAAGTTGGAGACACACTT | 1442 |
| Qy | 1441 | TTGATTATATTTAAGAATCAAGCAAGCAGACCATATAACATCTACCCTCACGGAATCACT | 1500 |
| | | | |
| Db | 1443 | TTGATTATATTTAAGAATAAAGCGAGCCGACCATATAACATCTACCCTCATGGAATCACT | 1502 |
| Qy | 1501 | GATGTCCGTCCTTTGTATTCAAGGAGATTACCAAAAGGTGTAAAACATTTGAAGGATTTT | 1560 |
| | | | |
| Db | 1503 | GATGTCAGCGCTTTGCACCCAGGAGACTTCTAAAAGGTGGAAACATTTGAAAGACATG | 1562 |
| Qy | 1561 | CCAATTCTGCCAGGAGAAATATTCAAATATAAATGGACAGTGAAGATGGGGCA | 1620 |
| | | | |
| Db | 1563 | CCAATTCTGCCAGGAGAGACTTTCAAGTATAAATGGACAGTGAAGATGGGGCA | 1622 |
| Qy | 1621 | ACTAAATCAGATCCGCGGTGCCTGACCCGCTATTACTCTAGTTTCGTTAATATGGAGAGA | 1680 |
| | | | |
| Db | 1623 | ACCAAGTCCGATCCTCGGTGCCTGACCCGCTACTACTCGAGCTCCATTAATCTAGAGAAA | 1682 |
| Qy | 1681 | GATCTAGCTTCAGGACTCATTGGCCCTCTCCTCATCTGCTACAAAGAATCTGTAGATCAA | 1740 |
| | | | |
| Db | 1683 | GATCTGGCTTCGGGACTCATTGGCCCTCTCCTCATCTGCTACAAAGAATCTGTAGACCAA | 1742 |
| Qy | 1741 | AGAGGAAACCAGATAATGTCAGACAAGAGGAATGTCATCCTGTTTTCTGTATTTGATGAG | 1800 |
| | | | |
| Db | 1743 | AGAGGAAACCAGATGATGTCAGACAAGAGAAACGTCATCCTGTTTTCTGTATTCGATGAG | 1802 |
| Qy | 1801 | AACCGAAGCTGGTACCTCACAGAGAATATACAACGCTTTCTCCCAATCCAGCTGGAGTG | 1860 |
| | | | |
| Db | 1803 | AATCAAAGCTGGTACCTCGCAGAGAATATTACGCGCTTCTCCCAATCCGGATGGATTA | 1862 |
| Qy | 1861 | CAGCTTGAGGATCCAGAGTTCCAAGCCTCCAACATCATGCACAGCATCAATGGCTATGTT | 1920 |
| | | | |
| Db | 1863 | CAGCCCCAGGATCCAGAGTTCCAAGCTTCTAACATCATGCACAGCATCAATGGCTATGTT | 1922 |

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|----|------|--|------|
| Qy | 1921 | TTTGATAGTTTGCAGTTGTCAGTTTGTGTTGTCATGAGGTGGCATACTGGTACATTCTAAGC | 1980 |
| | | | |
| Db | 1923 | TTTGATAGCTTGCAGCTGTCGGTTTGTGTTGCACGAGGTGGCATACTGGTACATTCTAAGT | 1982 |
| Qy | 1981 | ATTGGAGCACAGACTGACTTCCTTTCTGTCTTCTTCTCTGGATATACCTTCAAACACAAA | 2040 |
| | | | |
| Db | 1983 | GTTGGAGCACAGACGGACTTCCTCTCCGTCTTCTTCTCTGGCTACACCTTCAAACACAAA | 2042 |
| Qy | 2041 | ATGGTCTATGAAGACACACTCACCCCTATTCCCATTCTCAGGAGAACTGTCTTCATGTCTG | 2100 |
| | | | |
| Db | 2043 | ATGGTCTATGAAGACACACTCACCCCTGTTCCCCTTCTCAGGAGAAACGGTCTTCATGTCTA | 2102 |
| Qy | 2101 | ATGGAAAACCCAGGTCTATGGATTCTGGGGTGCCACAACCTCAGACTTTCGGAACAGAGGC | 2160 |
| | | | |
| Db | 2103 | ATGGAAAACCCAGGTCTCTGGGTCTAGGGTGCCACAACCTCAGACTTGCGGAACAGAGGG | 2162 |
| Qy | 2161 | ATGACCGCCTTACTGAAGGTTTCTAGTTGTGACAAGAACACTGGTGATTATTACGAGGAC | 2220 |
| | | | |
| Db | 2163 | ATGACAGCCTTACTGAAGGTGTATAGTTGTGACAGGGACATTGGTGATTATTATGACAAC | 2222 |
| Qy | 2221 | AGTTATGAAGATATTTTACGACATACTTGCTGAGTAAAAACAATGCCATTGAACCTAGGAGC | 2280 |
| | | | |
| Db | 2223 | ACTTATGAAGATATTCAGGCTTCTTGCTGAGTGGAAGAATGTCATTGAACCCAGA---- | 2279 |
| Qy | 2281 | TTTGCCCAGAATTCAGACCCCCCTAGTGCGAGCGCTCCAAAGCCTCCGGTCTGCGACGG | 2340 |
| Db | 2280 | ----- | 2279 |
| Qy | 2341 | CATCAGAGGGACATAAGCCTTCCTACTTTTCAGCCGGAGGAAGACAAAATGGACTATGAT | 2400 |
| | | | |
| Db | 2280 | -----GACATAAGCCTTCCTACTTTTCAGCCGGAGGAAGACAAAATGGACTATGAT | 2330 |
| Qy | 2401 | GATATCTTCTCAACTGAAACGAAGGGAGAAGATTTTGACATTTACGGTGAGGATGAAAAT | 2460 |
| | | | |
| Db | 2331 | GATATCTTCTCAACTGAAACGAAGGGAGAAGATTTTGACATTTACGGTGAGGATGAAAAT | 2390 |
| Qy | 2461 | CAGGACCTTCGCAGCTTTCAGAAGAGAACCCGACACTATTCATTGCTGCGGTGGAGCAG | 2520 |
| | | | |
| Db | 2391 | CAGGACCTTCGCAGCTTTCAGAAGAGAACCCGACACTATTCATTGCTGCGGTGGAGCAG | 2450 |
| Qy | 2521 | CTCTGGGATTACGGGATGAGCGAATCCCCCGGGCGCTAAGAAACAGGGCTCAGAACGGA | 2580 |
| | | | |
| Db | 2451 | CTCTGGGATTACGGGATGAGCGAATCCCCCGGGCGCTAAGAAACAGGGCTCAGAACGGA | 2510 |
| Qy | 2581 | GAGGTGCCTCGGTTCAAGAAGGTGGTCTTCCGGGAATTTGCTGACGGCTCCTTCACGCAG | 2640 |
| | | | |
| Db | 2511 | GAGGTGCCTCGGTTCAAGAAGGTGGTCTTCCGGGAATTTGCTGACGGCTCCTTCACGCAG | 2570 |
| Qy | 2641 | CCGTTCGTACCGCGGGGAACCTCAACAAACACTTGGGGCTCTTGGGACCCTACATCAGAGCG | 2700 |
| | | | |
| Db | 2571 | CCGTTCGTACCGCGGGGAACCTCAACAAACACTTGGGGCTCTTGGGACCCTACATCAGAGCG | 2630 |
| Qy | 2701 | GAAGTTGAAGACAACATCATGGTAACTTTCAAAAACAGGCGTCTCGTCCCTATTCTTC | 2760 |
| | | | |
| Db | 2631 | GAAGTTGAAGACAACATCATGGTAACTTTCAAAAACAGGCGTCTCGTCCCTATTCTTC | 2690 |
| Qy | 2761 | TACTCGAGCCTTATTTCTTATCCGGATGATCAGGAGCAAGGGGCAGAACCTCGACACAAC | 2820 |

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|----|------|--|--|------|
| Db | 2691 | | TACTCGAGCCTTATTTCTTATCCGGATGATCAGGAGCAAGGGGCAGAACCTCGACACAAC | 2750 |
| Qy | 2821 | | TTCGTCCAGCCAAATGAAACCAGAACTTACTTTTGGAAAGTGCAGCATCACATGGCACCC | 2880 |
| Db | 2751 | | TTCGTCCAGCCAAATGAAACCAGAACTTACTTTTGGAAAGTGCAGCATCACATGGCACCC | 2810 |
| Qy | 2881 | | ACAGAAGACGAGTTTGACTGCAAAGCCTGGGCCTACTTTTCTGATGTTGACCTGGAAAAA | 2940 |
| Db | 2811 | | ACAGAAGACGAGTTTGACTGCAAAGCCTGGGCCTACTTTTCTGATGTTGACCTGGAAAAA | 2870 |
| Qy | 2941 | | GATGTGCACTCAGGCTTGATCGGCCCCCTTCTGATCTGCCGCGCCAACACCCTGAACGCT | 3000 |
| Db | 2871 | | GATGTGCACTCAGGCTTGATCGGCCCCCTTCTGATCTGCCGCGCCAACACCCTGAACGCT | 2930 |
| Qy | 3001 | | GCTCACGGTAGACAAGTGACCGTGCAAGAATTTGCTCTGTTTTTCACTATTTTTGATGAG | 3060 |
| Db | 2931 | | GCTCACGGTAGACAAGTGACCGTGCAAGAATTTGCTCTGTTTTTCACTATTTTTGATGAG | 2990 |
| Qy | 3061 | | ACAAAGAGCTGGTACTTCACTGAAAATGTGGAAAGGAACTGCCGGGCCCCCTGCCATCTG | 3120 |
| Db | 2991 | | ACAAAGAGCTGGTACTTCACTGAAAATGTGGAAAGGAACTGCCGGGCCCCCTGCCACCTG | 3050 |
| Qy | 3121 | | CAGATGGAGGACCCCACTCTGAAAGAAAACCTATCGCTTCCATGCAATCAATGGCTATGTG | 3180 |
| Db | 3051 | | CAGATGGAGGACCCCACTCTGAAAGAAAACCTATCGCTTCCATGCAATCAATGGCTATGTG | 3110 |
| Qy | 3181 | | ATGGATACACTCCCTGGCTTAGTAATGGCTCAGAATCAAAGGATCCGATGGTATCTGCTC | 3240 |
| Db | 3111 | | ATGGATACACTCCCTGGCTTAGTAATGGCTCAGAATCAAAGGATCCGATGGTATCTGCTC | 3170 |
| Qy | 3241 | | AGCATGGGCAGCAATGAAAATATCCATTTCGATTCATTTTAGCGGACACGTGTTTCAGTGTA | 3300 |
| Db | 3171 | | AGCATGGGCAGCAATGAAAATATCCATTTCGATTCATTTTAGCGGACACGTGTTTCAGTGTA | 3230 |
| Qy | 3301 | | CGGAAAAAGGAGGAGTATAAAATGGCCGTGTACAATCTCTATCCGGGTGTCTTTGAGACA | 3360 |
| Db | 3231 | | CGGAAAAAGGAGGAGTATAAAATGGCCGTGTACAATCTCTATCCGGGTGTCTTTGAGACA | 3290 |
| Qy | 3361 | | GTGGAAATGCTACCGTCCAAAGTTGGAATTTGGCGAATAGAATGCCTGATTGGCGAGCAC | 3420 |
| Db | 3291 | | GTGGAAATGCTACCGTCCAAAGTTGGAATTTGGCGAATAGAATGCCTGATTGGCGAGCAC | 3350 |
| Qy | 3421 | | CTGCAAGCTGGGATGAGCACGACTTTCCTGGTGTACAGCAAGAAGTGTGAGACTCCCCTG | 3480 |
| Db | 3351 | | CTGCAAGCTGGGATGAGCACGACTTTCCTGGTGTACAGCAAGAAGTGTGAGACTCCCCTG | 3410 |
| Qy | 3481 | | GGAATGGCTTCTGGACACATTAGAGATTTTCAGATTACAGCTTCAGGACAATATGGACAG | 3540 |
| Db | 3411 | | GGAATGGCTTCTGGACGCAATTAGAGATTTTCAGATCACAGCTTCAGGACAGTATGGACAG | 3470 |
| Qy | 3541 | | TGGGCCCCAAAGCTGGCCAGACTTCATTATTCCGGATCAATCAATGCCTGGAGCACCAAG | 3600 |
| Db | 3471 | | TGGGCCCCAAAGCTGGCCAGACTTCATTATTCCGGATCAATCAATGCCTGGAGCACCAAG | 3530 |
| Qy | 3601 | | GAGCCCTTTTCTTGATCAAGGTGGATCTGTTGGCACCAATGATTATTACGGCATCAAG | 3660 |
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|----|------|--|------|
| Db | 3531 | GATCCCCACTCCTGGATCAAGGTGGATCTGTGGCACCAATGATCATTACAGGCATCATG | 3590 |
| Qy | 3661 | ACCCAGGGTGCCCGTCAGAAGTTCTCCAGCCTCTACATCTCTCAGTTTATCATCATGTAT | 3720 |
| | | | |
| Db | 3591 | ACCCAGGGTGCCCGTCAGAAGTTTCCAGCCTCTACATCTCCCAGTTTATCATCATGTAC | 3650 |
| Qy | 3721 | AGTCTTGATGGGAAGAAGTGGCAGACTTATCGAGGAAATTCACCTGGAACCTTAATGGTC | 3780 |
| | | | |
| Db | 3651 | AGTCTTGACGGGAGGAAGTGGCAGAGTTACCGAGGGAATTCCACGGGCACCTTAATGGTC | 3710 |
| Qy | 3781 | TTCTTTGGCAATGTGGATTTCATCTGGGATAAAACACAATATTTTTAACCCCTCCAATTATT | 3840 |
| | | | |
| Db | 3711 | TTCTTTGGCAATGTGGACGCATCTGGGATTAAACACAATATTTTTAACCCCTCCGATTGTG | 3770 |
| Qy | 3841 | GCTCGATACATCCGTTTGCACCCAACTCATTATAGCATTTCGAGCACTCTTCGCATGGAG | 3900 |
| | | | |
| Db | 3771 | GCTCGGTACATCCGTTTGCACCCAACACATTACAGCATCCGCAGCACTCTTCGCATGGAG | 3830 |
| Qy | 3901 | TTGATGGGCTGTGATTTAAATAGTTGCAGCATGCCATTGGGAATGGAGAGTAAAGCAATA | 3960 |
| | | | |
| Db | 3831 | TTGATGGGCTGTGATTTAAACAGTTGCAGCATGCCCCTGGGAATGCAGAATAAAGCGATA | 3890 |
| Qy | 3961 | TCAGATGCACAGATTACTGCTTCATCCTACTTTACCAATATGTTTGCCACCTGGTCTCCT | 4020 |
| | | | |
| Db | 3891 | TCAGACTCACAGATCACGGCCTCCTCCCACCTAAGCAATATATTGCCACCTGGTCTCCT | 3950 |
| Qy | 4021 | TCAAAAGCTCGACTTCACCTCCAAGGGAGGAGTAATGCCTGGAGACCTCAGGTGAATAAT | 4080 |
| | | | |
| Db | 3951 | TCACAAGCCCGACTTCACCTCCAGGGGCGGACGAATGCCTGGCGACCCCGGGTGAGCAGC | 4010 |
| Qy | 4081 | CCAAAAGAGTGGCTGCAAGTGGACTTCCAGAAGACAATGAAAGTCACAGGAGTAACTACT | 4140 |
| | | | |
| Db | 4011 | GCAGAGGAGTGGCTGCAGGTGGACCTGCAGAAGACGGTGAAGGTCACAGGCATCACCACC | 4070 |
| Qy | 4141 | CAGGGAGTAAAATCTCTGCTTACCAGCATGTATGTGAAGGAGTTTCCTCATCTCCAGCAGT | 4200 |
| | | | |
| Db | 4071 | CAGGGCGTGAAGTCCCTGCTCAGCAGCATGTATGTGAAGGAGTTTCCTCGTGTCCAGTAGT | 4130 |
| Qy | 4201 | CAAGATGGCCATCAGTGGACTCTCTTTTTTCAGAATGGCAAAGTAAAGGTTTTTCAGGGA | 4260 |
| | | | |
| Db | 4131 | CAGGACGGCCGCCGCTGGACCTGTTTCTTCAGGACGGCCACACGAAGGTTTTTCAGGGC | 4190 |
| Qy | 4261 | AATCAAGACTCCTTCACACCTGTGGTGAACCTCTCTAGACCCACCGTTACTGACTCGCTAC | 4320 |
| | | | |
| Db | 4191 | AATCAGGACTCCTCCACCCCGTGGTGAACGCTCTGGACCCCCGCTGTTACGCGCTAC | 4250 |
| Qy | 4321 | CTTCGAATTCACCCCCAGAGTTGGGTGCACCAGATTGCCCTGAGGATGGAGGTTCTGGGC | 4380 |
| | | | |
| Db | 4251 | CTGAGGATCCACCCACGAGCTGGGCGCAGCACATCGCCCTGAGGCTCGAGGTTCTAGGA | 4310 |
| Qy | 4381 | TGCGAGGCACAGGACCTCTAC | 4401 |
| | | | |
| Db | 4311 | TGTGAGGCACAGGATCTCTAC | 4331 |